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mental knowledge of delayed germination. From the physiological side we need to know the structures producing the delay, and how they are acted upon by the various conditions that will shorten it. GASSNER mentions two classes of seeds favored in their germination by light: the "dunkelharten" type, *C. ciliata* and *Ranunculus scleratus*; and those that are not affected by a period of darkness, *Poa* and many others.—WILLIAM CROCKER.

Osmotic pressure of leaves.—DIXON and ATKINS¹¹ have devised a thermo-electric method for determining the freezing points of juices of plants. The advantage of the apparatus over BECKMANN'S lies in the fact that the determination can be made with 2.5–5 cc. of liquid instead of 12 cc. or more. The apparatus was used for determining the osmotic pressures of the sap of foliage leaves. The osmotic pressure varied with different species and individuals under the same conditions, but was constant for an individual under a given condition. In an individual of *Syringa vulgaris*, change of condition brought about a change in pressure from 24.58 to 11.58 atmospheres. The amount of pressure was not determined by the height of the leaves above the ground, nor by the resistance of the conducting tracts supplying the leaves, but in every case the osmotic pressure was much greater than the tension of the water supply could have been. Variations were attributed in the main to variations in carbohydrate and water content. The osmotic pressure of leaves increased with insolation, loss of water, and age. The highest osmotic pressure found for *Syringa vulgaris* was 26.87 atmospheres. The authors believe that during summer, when sugars are abundant and transpiration great, leaves of *Syringa* may develop a pressure as high as 30–40 atmospheres. The high pressures of leaves is quite in contrast to the pressures of roots of the same species. The pressures in the roots varies from 4 to 6 atmospheres. These data of course furnish support for the cohesion theory of rise of sap. One wonders how closely the osmotic pressure of extracted juices corresponds to that of the living cells.—WILLIAM CROCKER.

Oxidation of hydrogen by microorganisms.—NIKLEWSKI'S¹² full report of work, which has been intermittently in progress since 1904, makes an interesting and valuable contribution. The study includes the isolation of two species of rod bacteria which are both morphologically and physiologically distinguishable. Neither of the two species isolated can develop in an oxygen-hydrogen atmosphere without the company of the other, but when both are present under suitable conditions for growth a condensation of the oxygen-hydrogen gas occurs. If an inorganic nutrient medium is inoculated with

¹¹ DIXON, H. H., and ATKINS, W. R. G., On osmotic pressures in plants; and on a thermo-electric method of determining freezing points. Sci. Proc. Roy. Soc. Dublin N.S. 12:275–311. 1910.

¹² NIKLEWSKI, BRONISLAW, Ueber die Wasserstoffoxydation durch Mikroorganismen. Jahrb. Wiss. Bot. 48:113–142. 1910.